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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,727	07/28/2003	Kazunori Inoue	1082.1061	7084

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EXAMINER	
HODGES, MATTHEW P	
ART UNIT	PAPER NUMBER
2879	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/627,727	INOUE ET AL.	
	Examiner	Art Unit	
	Matt P. Hodges	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7,8 and 14-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7,8 and 14-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/11/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Amendment, filed on 2/9/2007, has been entered and acknowledged by the Examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7, 8, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Busio et al. (US 2001/0005115 A1).

Regarding claims 1, 2, 4, 5, 8, 14, 15, Busio discloses (See Figure 1B), a gas discharge panel including a front substrate (1), electrodes (2, 3 and 4) formed on the substrate, a dielectric layer (5) formed on the substrate and electrodes, and a protection layer (33 and 6) formed on the dielectric layer. (Paragraph 0032). The protection layer has a bi-layer structure where it includes both a first layer of ZrO_2 and a second layer of MgO, formed in that order. The ZrO_2 has an ultraviolet shielding function. (Paragraph 0015) Busio further discloses the dielectric layer being a SiO2 layer including alkyl groups and being 15 μm thick. (Paragraph 0010).

The examiner notes that the inclusion of some Si-H bonds is inherent in the properties of the manufactured layer. The layer includes free Alkyl groups that act as free radicals and bond

(at least in limited quantities) with Si atoms. (Paragraph 0030). Further, in PDPs using any organic layers or processes using organic materials, it is common to have free H in the atmosphere or substrate layers. The H will bleed in small quantities into the various layers and form bonds with available elements.

Regarding claims 2 and 7 a protective layer composed of a bi-layer including a ZrO_2 layer would substantially shield the dielectric layer from light of 200nm or less.

Regarding claim 3, the protective layer composed of a bi-layer of ZrO_2 has a bandgap of 7.8 eV.

Regarding claim 14, Busio further discloses the use of a discharge space and phosphors in the display area. (See figure 1B).

Regarding claim 15, Busio alternatively discloses the use of a separate UV shielding layer (33) formed between the dielectric layer and the protection layer. (See figure 1B).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as obvious over Nakada et al. (US 2003/0030375 A1) in view of Uemura et al. (US 6,650,063).

Regarding claims 16 and 18, Nakada discloses (See Figure 1), a gas discharge panel including a front substrate (11), electrodes (12 and 13) formed on the substrate, a dielectric layer

(14) of CVD SiO_2 formed on the substrate and electrodes, and a protection layer (15) of MgO formed on the dielectric layer. (Paragraphs 0029 and 0060). Nakada does not appear to specify the use of a bi-layer protection layer on the dielectric layer, where the bi-layer includes MgO and TiO_2, however Uemura discloses a bi-layer protection structure including both MgO and TiO_2. (Column 3 lines 27-38). The TiO_2 is layered in at least 3μm thick and therefore has an ultraviolet shielding function. Further the use of the bi-layer structure advantageously allows for a better matching of expansion coefficients between the SiO_2 dielectric layer and the MgO protection layer, therefore further eliminating cracks and extending the lifetime of the device. (Column 3 lines 9-16). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the use of a bi-layer protection layer as taught by Uemura into the device as disclosed by Nakada in order to advantageously extend the lifetime of the device.

Regarding claim 18, Nakada in view of Uemura discloses the device as claimed (see rejection of claim 16 above) but does not appear to specify the use of ZrO_2 in the intermediate layer. However Uemura does disclose the use of various metal oxides for use in the intermediate layer. Further the stated purpose of the intermediate layer is to provide a material with a thermal expansion between that of the SiO_2 dielectric layer and the MgO protection layer. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have selected ZrO_2 as an alternative metal oxide since it has a linear thermal expansion coefficient

falling in the desired range and since the selection of known materials for a known purpose is within the skill of the art.

Response to Arguments

Applicant's arguments filed 2/9/2007 have been fully considered but they are not persuasive.

Regarding applicant's assertion that the dielectric layer disclosed by Busio is not equivalent to the claim SiO_2 layer, the examiner respectfully disagrees. The Layer disclosed by Busio is substantially SiO_2 with some additive elements to enhance performance. This would not substantially alter the properties of the layer and both layers are used for the same purpose. Further, applicant's own claimed layer is not a pure SiO_2 layer, as the layer includes Hydrogen.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt P Hodges whose telephone number is (571) 272-2454. The examiner can normally be reached on 7:30 AM to 4:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mph

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